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## **ABSTRACT**

Quantitative Risk Analysis (QRA) can be applied to provide a more realistic assessment of the risk associated with vessel accumulation due to common mode scenarios. The QRA process takes the results of a traditional flare study and QRA inputs such as the frequencies of the common mode scenarios and the layers of protection that will tend to reduce the severity of the common mode scenario, and generates an system risk profile, such as an accumulation versus frequency relationship for each vessel discharging to the relief header. This relationship provides an estimate of the overall risk associated with the relief header system. The QRA program makes the above analysis process possible by automating the generation, execution, and interpretation of the many possible permutations that are required to characterize the system.